SECTION 404(b) EVALUATION
ENVIRONMENTAL ASSESSMENT
AND FINDING OF NO SIGNIFICANT IMPACT
FOR THE MAINTENANCE DREDGING
OF THE

GREEN HARBOR

MARSHFIELD, MASSACHUSETTS

NOVEMBER 1982

US Army Corps of Engineers
New England Division

ENVIRONMENTAL ASSESSMENT

MAINTENANCE DREDGING

OF

GREEN HARBOR

MARSHFIELD, MASSACHUSETTS

PREPARED BY
DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION
CORPS OF ENGINEERS
WALTHAM, MASSACHUSETTS 02254

TABLE OF CONTENTS

Proposed Action

The U.S. Army Corps of Engineers is proposing to dredge approximately 20,000 cubic yards of fine sand from the entrance channel into Green Harbor in Marshfield, Massachusetts. (See Figure 1.) This maintenance dredging of the existing Federal channel would restore the channel to its authorized depth of 6-feet below Mean Low Water (MLW). The sand would be hydraulically dredged from the channel and pumped to Green Harbor Beach where the sand would be used for beach nourishment. The dredging would be performed by a private contractor; it is anticipated that the total operation would require about a month to complete. Grain size curves are shown in Appendix A.

Green Harbor is a tidal estuary in the southeastern part of the town of Marshfield, Massachusetts. The harbor is about 35 miles southeast of Boston, Massachusetts. Except for the Town Pier, Green Harbor Marina, and some residential development, the shoreline along the harbor consists primarily of salt marsh. However, the harbor receives heavy use by a large fleet of recreational and commercial vessels. Approximately 620 recreational boats, 60 commercial fishing vessels and 35 full-time lobster boats berth in the harbor. In addition, part-time lobster boats as well as charter vessels operate out of the harbor. The channel depth has been reduced to less than one foot at MLW; this shoaling precludes boats from entering the harbor during lower stages of the tide. This situation can become critical when storms threaten vessels at sea since the nearest alternate ports are 10 to 15 miles away. To meet the commercial and safety needs of the boating community, the Federal channel must be maintained at its authorized dimensions.

Environmental Impacts

The primary environmental impact that would occur from the dredging and disposal operations would be the loss of benthic organisms present at both sites. During hydraulic dredging, bottom sediments are mixed with water and are drawn up into the dredge pipeline. This slurry of sediments and water is then pumped to a disposal site. Any benthic organisms drawn up with the sediments likely die because of physical abrasion. Most organisms buried at the discharge site would also be lost.

This impact, however, should not be significant. Aquatic sands are unstable environments and fauna and flora find it difficult to establish themselves or to thrive in such an unstable environment.

There are no threatened or endangered species known to inhabit the Green Harbor area and therefore there should be no impact to any such species.

Alternatives

There is only one alternative to the proposed maintenance dredging of the Green Harbor entrance channel, and that would be to abandon the project. However, since the harbor is a highly active commercial and recreational port, abandonment of the project would not be in the best public interest.

There are other options for disposal of the sand, e.g. at an upland site, in ocean waters, or at other beaches, but these alternative disposal options would result in the loss of this sand from the existing beach system. For this reason, disposal on the adjacent beach is the preferred disposal option.

Federal Environmental Statutes

I. Archaeological and Historical Preservation Act, as amended, 16 U.S.C. 469 et seq. The Division Archaeologist has assessed the site, and determine it has no value. Full compliance.

II. Clean Air Act, as amended, (42 U.S.C. 7609). Review of this assessment will determine whether the proposal is in compliance with this Act.

III. Clean Water Act of 1977, (Federal Water Pollution Control Act Amendments of 1972) 33 U.S.C. 1251 et. seq. A 404(b) evaluation has been prepared, and the determination is the proposal would be in compliance with this Act.

IV. Coastal Zone Management Act of 1972, as Amended, 16 U.S.C. 1451 et. seq. Coordination with the Massachusetts Coastal Zone Management Office has been instituted.

V. Endangered Species Act of 1973, as Amended, 16 U.S.C. 1531 et. seq. There are no known endangered species located at either site.

VI. Estuary Protection Act (16 U.S.C. 1221 et. seq. This assessment constitutes compliance with this Act.

VII. Federal Water Project Recreation Act (16 U.S.C. 460-1-12 et. seq.) Not applicable.

VIII. Fish and Wildlife Coordination Act, 16 U.S.C. 661 et. seq. Coordination letters will be sent to the U.S. Fish and Wildlife Service and National Marine Fisheries Service. In compliance.

IX. Land and Water Conservation Fund Act (16 U.S.C. 4601 et. seq. Not applicable.

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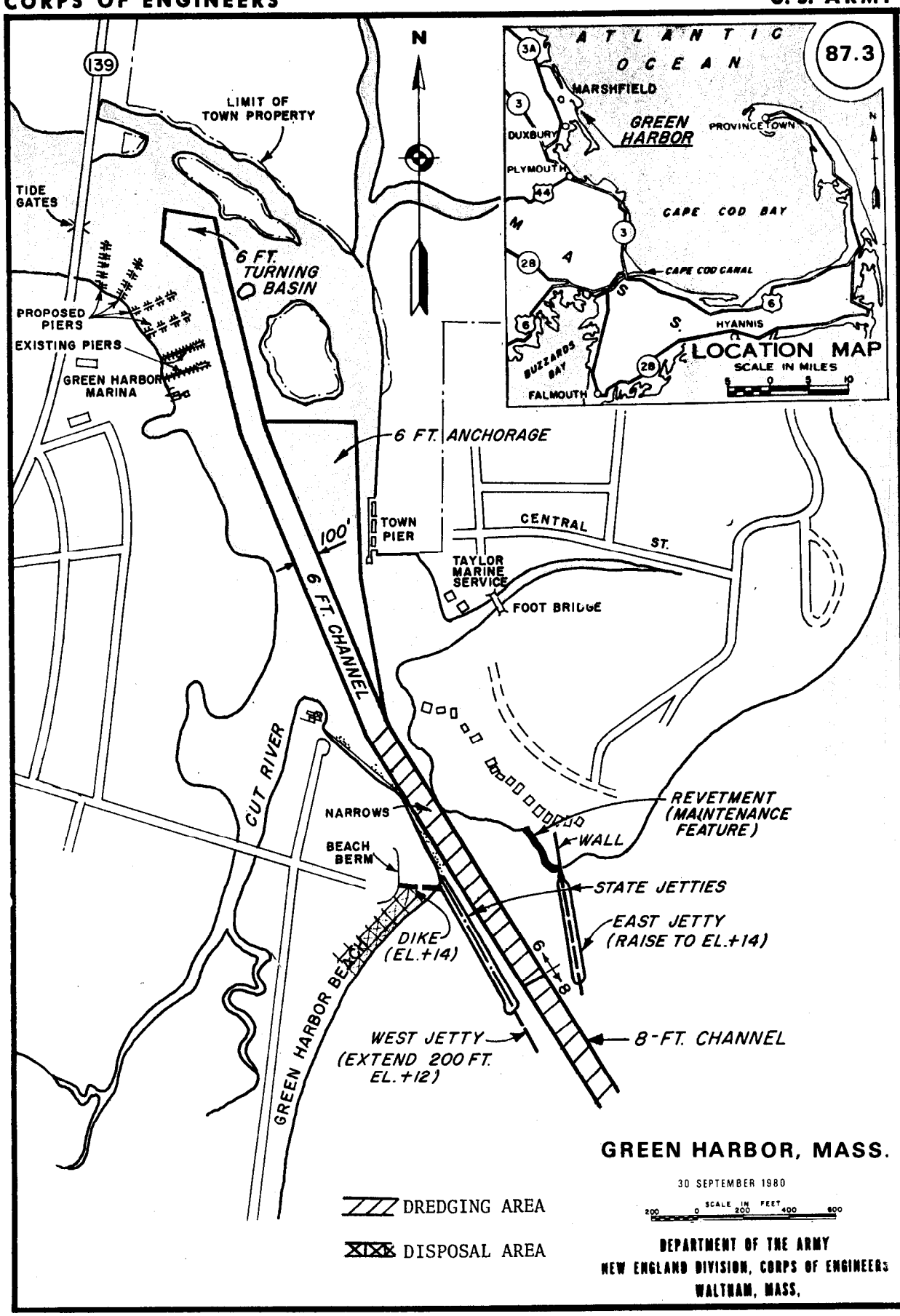


FIGURE 1

X. Marine Protection Research and Sanctuaries Act of 1972, as Amended, 16 U.S.C. 1401 et. seq. Not applicable.

XI. National Historic Preservation Act (42 U.S.C. 4321 et. seq. See response to I.

XII. National Environmental Policy Act (42 U.S.C. 4321 et. seq. In compliance.

XIII. River and Harbor Act (33 U.S.C. 401 et. seq. Not applicable.

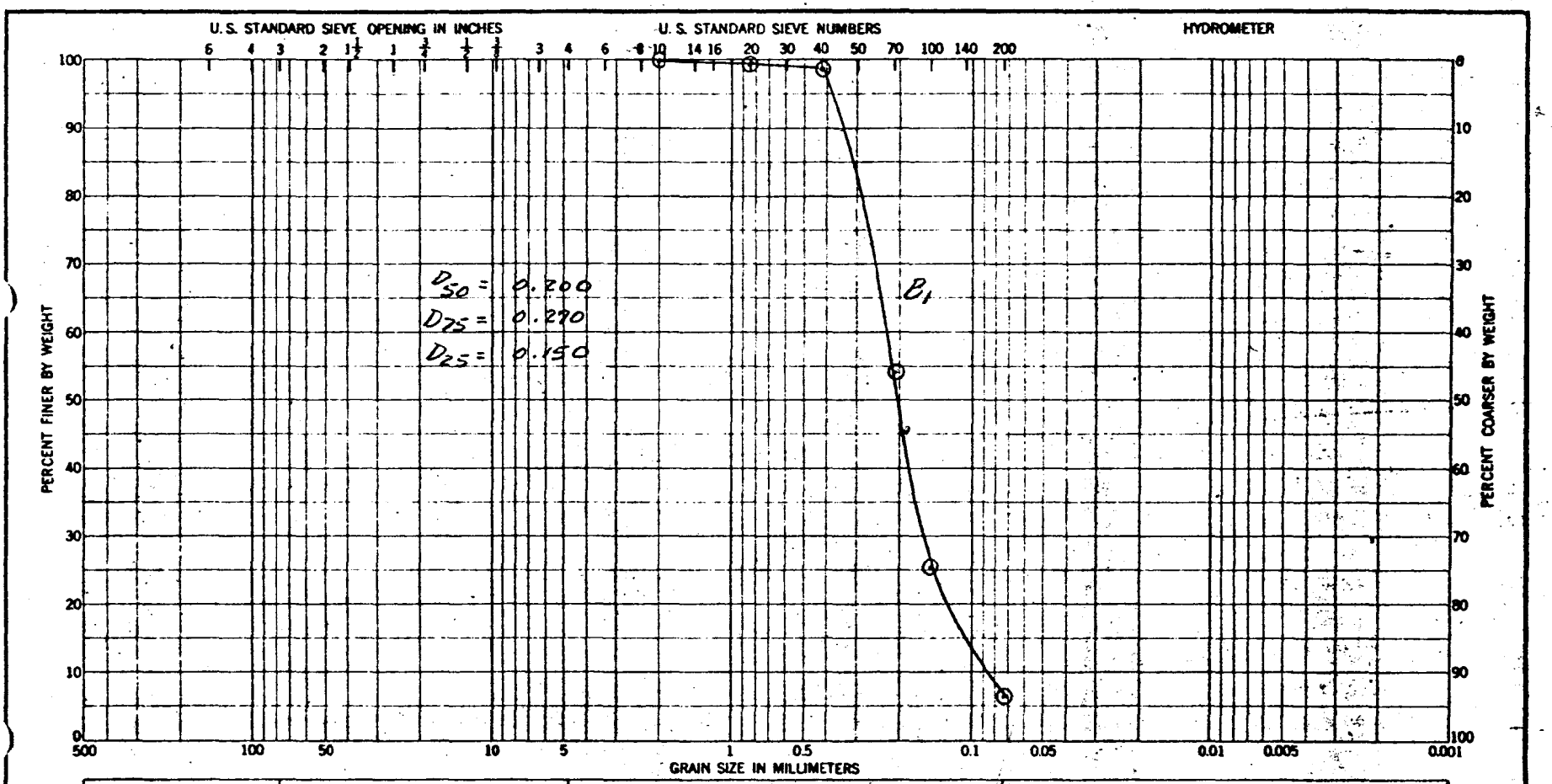
XIV. Watershed Protection and Flood Prevention Act (16 U.S.C. 1001 et. seq. Not applicable.

XV. Wild and Scenic River Act (16 U.S.C. 1271 et. seq. Not applicable.

APPENDIX A

BOTTOM SEDIMENT SAMPLE TEST RESULTS
GREEN HARBOR, MA

PARAMETER	GE-1-76	GE-2-76
Specific Gravity Solids	2.67	2.66
% Fines	6.6	3.8
% Solids	75.67	72.92
% Volatile Solids (NED)	0.60	0.30
% Oil & Grease	0.031	0.017
Hg (ppm)	0	0
Pb (ppm)	16	0
Zn (ppm)	24	15
As (ppm)	1.1	0.7
Cd (ppm)	0	0
Cr (ppm)	7.9	7.7
Cu (ppm)	34	13
Ni (ppm)	13	13
V (ppm)	0	0



Sample No.	Elev or Depth	Classification	Nat w %	LL	PL	PI
B-1	Surface	silty Fine SAND (SP-SM)				

GRADATION CURVES

Project: Green Harbor
Marshfield, Mass.
Area:
Boring No. GE-1 (Lab. Sy. No. 110-214-1)
Date: March 1976

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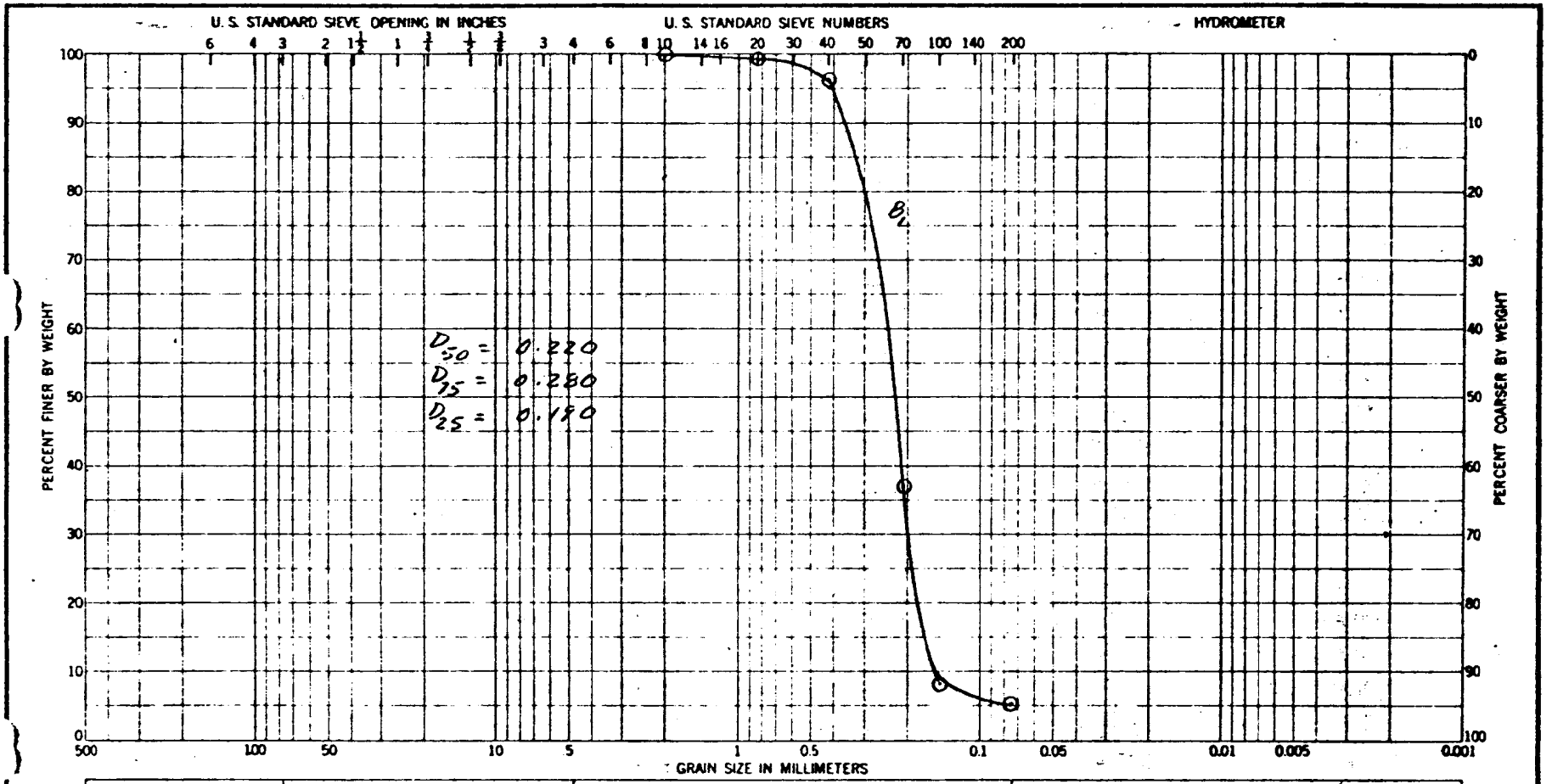

Sample No.	Elev or Depth	Classification	Nat w %	LL	PL	PI
B-1	Surface	silty fine SAND (SP-SM)				
	–					

GRADATION CURVES

Project: Green Harbor, Marshfield, Mass.

Area:

Boring No.: CE-3 (Lab. Ser. No. 100-214-3)

Date: March 1976

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SECTION 404 EVALUATION

FOR

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Section 404(b) Factual Determination and Findings of Compliance

Introduction

Under the Clean Water Act of 1977, a 404(b) Evaluation is required before dredged or fill materials can be discharged into waters of the United States. A 404 Evaluation is used to determine if the discharge would have an unacceptable impact upon an aquatic ecosystem. There are three parts to a 404 Evaluation. The first is a Factual Determination; this section mainly addresses the physical, chemical, and cumulative effects of the proposed discharge. The second is Restrictions on Discharge; this section addresses whether the proposed discharge can or cannot meet the 404 Evaluation Guidelines. The third part is a Finding of Compliance with the Restrictions on Discharge; this section states whether the proposed discharge does or does not meet the 404 Evaluation Guidelines. The Format for this evaluation will be: References, Project Description, Factual Determination, Restrictions on Discharge, and Finding of Compliance.

References

a. Section 404(b) of Public Law 92-500, Clean Water Act.

b. 40 CFR 320 Subparts B, C, D, E, F, G and H dated 24 December 1980.

Proposed Project

The U.S. Army Corps of Engineers is proposing to dredge approximately 20,000 cubic yards of fine grain sand from the entrance channel into Green Harbor in Marshfield, Massachusetts. (See Figure I.) This maintenance dredging of the existing Federal channel would restore the channel to its authorized depth of 6-feet below Mean Low Water. The sand would be hydraulically dredged from the channel and pumped to Green Harbor Beach where the sand would be used to nourish the existing beach. It is anticipated that the total operation would require about one month to complete.

230.11 Factual Determinations

(a) Physical Substrate Determinations. There would be little or no change in the physical substrate at the disposal site. The sand accumulating in the channel is being transported from the adjacent beach. This was determined by observation of Corps personnel and by interviews with local property owners. Placing the sand back onto the beach would keep it in the same littoral system, and would help to maintain the beach.

(b) Water Circulation, Fluctuation, and Salinity Determinations. Disposal at the site should not significantly affect these factors. Sand placed on the beach would be distributed as a thin veneer of additional sand over the area by tidal and wind forces; this additional layer of sand

would not markedly change water circulation of the ocean, its fluctuation, or its salinity.

(c) Suspended Particulate/Turbidity Determinations. Turbidity would be generated during disposal; however, sand settles out of the water column rapidly, and for this reason turbidity would be restricted to a small area immediately adjacent to the dredge and the discharge pipe.

(d) Contaminant Determinations. Sands are found in high energy areas, and therefore usually do not contain high levels of contaminants. Test results on sand samples show the sand to be relatively clean. (See Appendix A)

(e) Aquatic Ecosystem and Organism Determinations. The proposed discharge would not significantly change or modify the existing substrate. Therefore, the site should become recolonized by organisms from the adjacent areas, and the present ecosystem should not be significantly modified.

(f) Proposed Disposal Site Determinations. The mixing zone at the site would be restricted to a minimum.

(g) Determination of Cumulative Effects on the Aquatic Ecosystem. Since the only discharge into the disposal area would be sand and since this is the existing substrate, there should not be any significant cumulative effects from this discharge or similar discharges.

(h) Determination of Secondary Effects on the Aquatic Ecosystem. There should be no significant secondary effects from the discharge of sand at the disposal site.

230.10 Restriction on Discharge

(a) Alternatives. There are no practicable alternatives to the one being proposed. Disposal into the present littoral regime would maintain the present balance of the system.

(b) Discharge. The discharge of sand at the disposal site would not cause any permanent violation of water quality standards, toxic effluent standards, or jeopardize any endangered species. Sands normally contain few contaminants. (See Appendix A in Environmental Assessment)

(c) Degradation of U.S. Waters. There would not be any significant degradation of waters of the U.S., nor would the discharge cause any adverse effect to human health or to the ecosystem.

(d) Minimization of Potential Adverse Impacts. All practical measures have been taken to reduce any potential adverse impacts to the aquatic ecosystem.

230.12 Findings of Compliance

On the basis of these Guidelines, I have determined that the discharge of dredged material from the Green Harbor channel into U.S. waters would be specified as complying with 404(b) Guidelines.

5 Nov 82
DATE

CARL B. SCIPLE
Colonel, Corps of Engineers
Division Engineer

FINDING OF NO SIGNIFICANT IMPACT

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Finding of No Significant Impact

I have reviewed the information presented in the Environmental Assessment for the maintenance dredging of Green Harbor in Marshfield, Massachusetts. The analysis presented in the Assessment shows that there should be no significant impacts resulting from the dredging and disposal of harbor sediments, and there would be benefits to the local community from this operation.

Since there would be no significant adverse impacts associated with this project, an Environmental Impact Statement will not be prepared. A Public Notice of these Findings and the availability of the Environmental Assessment will be distributed to concerned agencies.

5 Nov '82
DATE

CARL B. SCIPLE
Colonel, Corps of Engineers
Division Engineer